

## CRYSTAL GROWTH METHOD FOR COMPOUND SEMICONDUCTOR

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### Abstract

**PURPOSE:** To grow an upper layer compound semiconductor crystal of high quality when different type compound semiconductors are grown at the same temperature and to form an abrupt hetero boundary by simultaneously supplying carrier gas and gas having heavier specific weight than that of the carrier gas when a material of an element for constituting a compound semiconductor crystal is supplied.

**CONSTITUTION:** When an InAs crystal is grown on a substrate 3, (CH<sub>3</sub>)<sub>3</sub>In and AsH<sub>3</sub> are used as materials. The (CH<sub>3</sub>)<sub>3</sub>In and AsH<sub>3</sub> are switched by a valve (b), alternately supplied to a reaction tube 1, and grown. H<sub>2</sub> is used as the carrier gas, and Ar is simultaneously supplied at the time of supplying the (CH<sub>3</sub>)<sub>3</sub>In. Thus, since a surface temperature of the substrate 3 can be effectively lowered, the (CH<sub>3</sub>)<sub>3</sub>In can be supplied to the surface of the substrate in an undecomposed state as it is, and the methyl indium reaching the substrate 3 is eliminated as it is or rapidly decomposed to become In so as to contribute to the growth. Accordingly, an InAs atomic layer epitaxial growth can be conducted at 400 deg.C or higher.